

WHAT IS CLAIMED IS:

1. An apparatus for recovering abnormal control cells in
an asynchronous transfer mode (ATM) exchange subscriber unit,
5 comprising:

a controller for monitoring and controlling the entire
operation of the subscriber unit, discarding abnormal cells
and recovering cell synchronization;

a first-in first-out memory (FIFO) manager connected to
10 said controller for transmitting and receiving cells to/from
said controller;

reception FIFO means for temporarily storing a cell
received from a different ATM exchange and transmitting the
stored cell to said FIFO manager; and

15 transmission FIFO means for temporarily storing a cell
transmitted from said FIFO manager and transmitting the stored
cell externally.

2. The apparatus as set forth in claim 1, wherein said
20 reception FIFO means includes four FIFOs for inputting and
outputting cells.

3. The apparatus as set forth in claim 1, wherein said
transmission FIFO means includes four FIFOs for inputting and
25 outputting cells.

4. A method for recovering abnormal control cells in an asynchronous transfer mode (ATM) exchange subscriber unit, comprising the steps of:

a) transmitting a signal cell or control cell and then sequentially checking a plurality of reception first-in first-out memories (FIFOs) to determine whether a new cell has arrived;

b), if there is no start of cell (SOC) signal in an initial byte of a current cell under the condition that a cell synchronization loss signal is present in the current cell, or if the SOC signal is detected during transfer of the current cell, after said step a) is performed, recognizing that the current cell is abnormal; and

c), if the cell synchronization loss signal is abnormal at said step b), discarding the current cell and fully emptying an associated FIFO to recover cell synchronization.

5. The method as set forth in claim 4, wherein said step a) includes the steps of:

a-1) determining whether there is a cell to be transmitted;

a-2), if it is determined at said step a-1) that there is the cell to be transmitted, transmitting the cell and then returning to said step a-1);

a-3), if it is determined at said step a-1) that there

is no cell to be transmitted, determining whether there is a cell to be received; and

a-4) returning to said step a-1) if it is determined at said step a-3) that there is no cell to be received and, if it is determined at said step a-3) that there is the cell to be received, receiving the cell and then returning to said step a-1).

6. The method as set forth in claim 5, wherein said step a-1) includes the steps of:

a-1-1) determining that the cell synchronization is normal, if said cell synchronization loss signal has been set; and

a-1-2) determining that there is the cell to be transmitted, if a transmission enable signal is detected.

7. The method as set forth in claim 5, wherein said step a-2) includes the steps of:

a-2-1) determining whether a transmission synchronous signal is detected from an initial byte of the cell to be transmitted;

a-2-2) transmitting the initial byte if it is determined at said step a-2-1) that the transmission synchronous signal is detected from the initial byte; and

a-2-3) determining whether the transmission synchronous

signal is detected from the cell to be transmitted, in order from a subsequent byte to a last byte, transmitting each of the bytes whenever the transmission synchronous signal is detected and then returning to said step a-1).

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8. The method as set forth in claim 7, wherein the cell to be transmitted has 64 bytes.

10 9. The method as set forth in claim 5, wherein said step a-4) includes the steps of:

a-4-1) determining whether a reception synchronous signal is detected from an initial byte of the cell to be received;

15 a-4-2) receiving the initial byte if it is determined at said step a-4-1) that the reception synchronous signal is detected from the initial byte; and

20 a-4-3) determining whether the reception synchronous signal is detected from the cell to be received, in order from a subsequent byte to a last byte, receiving each of the bytes whenever the reception synchronous signal is detected and then returning to said step a-1).

10. The method as set forth in claim 9, wherein the cell to be received has 64 bytes.

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11. The method as set forth in claim 4, wherein the current cell at said step b) is in any one of transmission or reception.

5 12. The method as set forth in claim 4, wherein the current cell at said step c) is in any one of transmission or reception.

10 13. The method as set forth in claim 12, wherein said step c) includes the steps of:

 c-1), if the current cell in transmission is abnormal, setting to 0 all bytes to be transmitted under the condition that said synchronization loss signal is not set; and

15 c-2) setting no transmission synchronous signal and then returning to said step a).

 14. The method as set forth in claim 12, wherein said step c) includes the steps of:

20 c-1), if the cell in reception is abnormal, setting to 0 all bytes to be received under the condition that said synchronization loss signal is not set; and

 c-2) setting no reception synchronous signal, reading data from an associated one of said reception FIFOs until it is fully emptied, and then returning to said step a).

15. An apparatus for recovering abnormal control cells in an asynchronous transfer mode (ATM) exchange subscriber unit, comprising:

a controller for monitoring and controlling the entire operation of the subscriber unit, and discarding abnormal cells and recovering cell synchronization on the basis of a start of cell (SOC) signal;

a first-in first-out memory (FIFO) manager connected to said controller for transmitting and receiving cells to/from said controller;

reception FIFO means for temporarily storing a cell received from a different ATM exchange and transmitting the stored cell to said FIFO manager; and

transmission FIFO means for temporarily storing a cell transmitted from said FIFO manager and transmitting the stored cell externally.

16. The apparatus as set forth in claim 15, wherein said reception FIFO means includes four FIFOs for inputting and outputting cells.

17. The apparatus as set forth in claim 15, wherein said transmission FIFO means includes four FIFOs for inputting and outputting cells.